

AMENDMENTS TO THE CLAIMS

1.-19. (Canceled)

20. (Currently Amended) In a process for oxidizing a selected compound comprising culturing recombinant cells in the presence of said compound under conditions wherein the desired oxidation occurs and the oxidized compound accumulates in the culture liquid and recovering the oxidized compound, the improvement comprising using a recombinant host cell of claim 39-43.

21.-33. (Canceled)

34. (Currently Amended) An expression cassette comprising:

a first heterologous DNA encoding a ~~two or more~~ bovine or human ~~enzyme enzymes~~ selected from the group consisting of: side-chain cleaving enzyme (P<sub>450</sub>SCC) SGG, adrenodoxin (ADX), ADR, and adrenodoxin reductase (ADR), ADX, 3 $\beta$ -HSD, steroid 17 $\alpha$ -hydroxylase, NADPH, RED, steroid 21-hydroxylase and steroid 11 $\beta$ -hydroxylase from the metabolic pathway for the biosynthesis of cholesterol to hydrocortisone wherein one of the enzymes catalyzes the oxidation of cholesterol to pregnenolone with a bovine enzyme ; and

a second heterologous DNA encoding at least one enzyme the remaining one or more enzymes catalyze at least one reaction selected from the group consisting of: bovine, human, *Pseudomonas testosteroni*, *Streptomyces griseocarnes* or *Brevibacterium sterolicum* 3 $\beta$ -hydroxy steroid dehydrogenase/isomerase (3 $\beta$ -HSD); bovine or human steroid 17 $\alpha$ -hydroxylase (P<sub>450</sub>17 $\alpha$ ); bovine or human NADPH cytochrome P<sub>450</sub> reductase (RED); bovine or human steroid-21-hydroxylase (P<sub>450</sub>C21); bovine, human, *Curvularia lunata* or *Cunninghamella blakesleeana* steroid 11 $\beta$ -hydroxylase (P<sub>450</sub>11 $\beta$ ); bovine or human ADX; and bovine or human ADR; the oxidation of pregnenolone to progesterone; the oxidation of progesterone to 17 $\alpha$ -hydroxyprogesterone; the oxidation of 17 $\alpha$ -hydroxyprogesterone to corticosterone; and the oxidation of corticosterone to hydrocortisone and

wherein each the heterologous DNA is operably linked to control sequences required to express the encoded enzymes in a recombinant host.

35. (Canceled)

36. (Currently Amended) The expression cassette according to claim 34 wherein the ~~enzyme that catalyzes the oxidation of cholesterol to pregnenolone is~~ first heterologous DNA encodes side-chain

cleaving enzyme ( $P_{450}SCC$ ) and the remaining one or more enzymes are selected from the group of:  $3\beta$ -hydroxysteroid dehydrogenase/isomerase ( $3\beta$ -HSD); adrenodoxin (ADX); adrenodoxin (ADR); steroid  $17\alpha$ -hydroxylase ( $P_{450}17\alpha$ ); NADPH-cytochrome  $P_{450}$  reductase (RED); steroid 21-hydroxylase ( $P_{450}C21$ ); and steroid  $11\beta$ -hydroxylase ( $P_{450}11\beta$ ).

37. (Currently Amended) The expression cassette according to claim 36 characterized in that wherein the second heterologous DNA coding sequences originate from encodes a human or bovine enzyme species.

38. (Currently Amended) The expression cassette according to claim 36 wherein the enzyme that catalyzes the oxidation of cholesterol to pregnenolone is side chain cleaving enzyme ( $P_{450}SCC$ ) and the remaining one enzyme is second heterologous DNA encodes adrenodoxin (ADX).

39. (Currently Amended) The A recombinant host cell and progeny thereof comprising at least one expression cassette according to claim 34.

40. (Currently Amended) The recombinant host cell and progeny thereof according to claim 39, wherein the host cell is a micro-organism.

41. (Currently Amended) The recombinant host cell and progeny thereof according to claim 40, wherein the host is a species of *Saccharomyces*, *Kluyveromyces* or *Bacillus* or *Escherichia coli*.

42. (Currently Amended) A process for making two or more bovine or human enzymes selected from the group consisting of  $P_{450}SCC$ , ADR, ADX,  $3\beta$ -HSD, steroid  $17\alpha$ -hydroxylase, NADPH, RED, steroid 21-hydroxylase and steroid  $11\beta$ -hydroxylase from the metabolic pathway for the bioconversion of cholesterol to hydrocortisone; the method comprising incubating the recombinant host cell of claim 41 39 in a nutrient medium under conditions where the two or more enzymes encoded by the heterologous DNA expression cassette are expressed and accumulate.

43. (Canceled)

44. (Currently Amended) The A recombinant host cell comprising at least one expression cassette according to claim 36 according to claim 43 wherein the enzyme that catalyzes the oxidation of cholesterol to pregnenolone is side chain cleaving enzyme ( $P_{450}SCC$ ) and the remaining one or more enzymes are selected from the group of:  $3\beta$ -hydroxysteroid dehydrogenase/isomerase ( $3\beta$ -HSD);

adrenodoxin (ADX); adrenodoxin reductase (ADR); steroid 17 $\alpha$ -hydroxylase (P<sub>450</sub>17 $\alpha$ ); NADPH cytochrome P<sub>450</sub> reductase (RED); steroid 21-hydroxylase (P<sub>450</sub>C21); and steroid 11 $\beta$ -hydroxylase (P<sub>450</sub>11 $\beta$ ).

45. (Currently Amended) The A recombinant host cell comprising at least one expression cassette according to claim 38 ~~according to claim 47 wherein the enzyme that catalyzes the oxidation of cholesterol to pregnenolone is side-chain cleaving enzyme (P<sub>450</sub>SCC) and the remaining one or more enzymes includes at least adrenodoxin (ADX).~~

46. (Currently Amended) The recombinant host cell of claim 45 ~~47~~ wherein the host cell is a *Kluyveromyces* species and ~~wherein the enzyme that catalyzes the oxidation of cholesterol to pregnenolone is side-chain cleaving enzyme (P<sub>450</sub>SCC) and the remaining one or more enzymes includes at least adrenodoxin (ADX).~~